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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Shuichi Mafune

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EXAMINER

WARTALOWICZ, PAUL A

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/809,709	<b>Applicant(s)</b> MAFUNE ET AL.	
	<b>Examiner</b> Paul A. Wartalowicz	<b>Art Unit</b> 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-8 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-8 and 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 6/21/07 have been fully considered but they are not persuasive.

Applicant argues that the amended claims require that the precipitate is formed at a pH of 6 or higher and that Golden does not teach this limitation.

However, claim 2 does not include positive process limitations in the forming of the precursor clearly pointing out distinct process steps. The claim language "the amorphous substance is a precipitated substance **obtained by** precipitation from an aqueous solution containing R ions and T ions using a precipitant under pH of 6 or higher," (emphasis added) indicates product by process limitations regarding the formation of the precursor. If applicant positively recites the process limitations of formation of the precursor, said limitations will be considered as process limitations and not product by process limitations.

Applicant argues that Golden teaches a different process for making the precursor to be heat-treated to form a perovskite than the process of the instantly claimed invention.

However, it appears that Toshima teaches a process for producing a metal precipitate using a reducing agent to avoid the making of a hydroxide (col. 6). Producing metal particles (without producing hydroxides) is important to provide for a large surface area wherein the particles are surface modified with barium titanate.

Courty et al. teach a process for making an amorphous homogenous precipitate at the claimed conditions of reaction (col. 16).

It appears that the combined prior art teach the conditions of precipitating an amorphous substance from an aqueous solution containing R and T ions using a precipitant and a reducing agent at a pH of 6-12.

Applicant argues that there is no basis to conclude that the precursor of Golden is amorphous.

While, the process of making the precursor may be different in Golden than in the claimed invention, it appears that the instantly claimed product by process is the same as that which is claimed (precipitation product). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*. 173 USPQ 685 and *In re Fessman*, 180 USPQ 324.

Additionally, because Golden teaches that different elements in the form of salts may be added to the precipitate and powdered and sintered together to form a single phase perovskite metal oxide material (col. 6, lines 30-37), it appears that the structure of the precursor is amorphous as to incorporate metals into the crystalline structure.

Applicant argues that there is no basis to conclude that the invention of claims 1 and 12 are obvious over Golden because of drawbacks created by the process of Golden that do not occur in the current invention.

However, with respect to claim 1, it appears that applicant is arguing aspects of a process that is the form of a product by process. As such, the drawbacks referred to by applicant are considered only as they influence the structure of the precursor, not how the drawbacks affect the process of making the precursor.

Regarding claim 12, it appears that the prior art teach a substantially similar process of making the precursor including pH, temperature, precipitant and reducing agent added to the metal aqueous solution. Therefore, it appears that any advantages of the current invention would be substantially similar in the combined prior art.

Additionally, the limitations of not including such drawbacks are not claimed. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., absence of NO<sub>x</sub> during drying and baking) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that Toshima teaches adding a reducing agent to avoid forming of the hydroxide and that this peculiar to Toshima and has nothing to do with Golden.

However, Toshima teaches a process for producing a metal precipitate using a reducing agent to avoid the making of a hydroxide (col. 6). Producing metal particles (without producing hydroxides) is important to provide for a large surface area wherein the particles are surface modified with barium titanate. This teaching is applicable in Golden because Golden would desire a precursor with a large surface area in producing a perovskite material.

Applicant argues that Ward does not make up for failings of Golden and Toshima, and that the prior art fail to establish a prima facie case of obviousness.

However, Ward is not relied upon for the limitations in question. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

### ***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1754

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, and 5-8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Golden (U.S. 5977017).

Golden teaches a method of making a perovskite (col. 1, lines 10-17) comprising heat-treating a precipitation product of rare earth elements and transition elements at a temperature of 700° (Throughout document, particularly col. 6, lines 1-30, Example 7).

If the precipitate is not amorphous, it would be obvious to one of ordinary skill that the precipitate is amorphous because the precipitate is based on the homogenous mixture is heated only to form a precipitate and then further heated to produce a perovskite structure.

As to the limitation that the amorphous substance is a precipitation product is obtained by the claimed steps, it appears that the instantly claimed product by process is the same as that which is claimed (precipitation product). When the examiner has

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found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessman*, 180 USPQ 324.

As the limitations wherein the noble metal element-containing perovskite complex oxide exhibits certain properties, the prior art of record teaches a substantially similar process of making to that of the claimed invention such that the properties of the product made by said process of the prior art of record are substantially similar to that of the claimed invention. Some evidence of this is that the BET surface areas of perovskites in Golden exceed 10 m<sup>2</sup>/g (Throughout document, Examples 7 and 11).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.



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Claims 1, 2, 7, 8, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golden (U.S. 5977017) in view of Toshima et al. (U.S. 6632524) and Courty et al. (U.S. 4596782).

Golden teaches a method of making a perovskite (col. 1, lines 10-17) comprising heat-treating a precipitation product of rare earth elements and transition elements at a temperature of 700° (Throughout document, particularly col. 6, lines 1-30, Example 7). The BET surface areas of perovskites in Golden exceed 10 m<sup>2</sup>/g (Throughout document, Examples 7 and 11).

Golden fails to teach the claimed limitations of how the precipitate is formed.

However, Toshima et al. teaches a process for producing a perovskite precursor comprising a nickel precipitate (transition element, Throughout document, particularly col. 6, lines 1-5) comprising mixing an alkaline aqueous solution with an aqueous solution of nickel salt and a hydrazine reducing agent for the purpose of forming a precipitate without forming any hydroxide as an intermediate (Throughout document, particularly col. 6, lines 35-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide forming a precipitate comprising mixing an alkaline aqueous solution with an aqueous solution of nickel salt and a hydrazine reducing agent in Golden in order to form a precipitate without forming any hydroxide as an intermediate (Throughout document, particularly col. 6, lines 35-67) as taught by Toshima et al.

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Courty et al. teach a process for producing a catalyst (col. 1) wherein a precursor of a mixture oxides is prepared by contacting a solution of soluble metal salts in a concentration of 0.2-0.6 gram-atoms per liter with an alkali at a pH of about 6.3-7.3 and at a temperature of about 20-80°C so as to form an amorphous homogenous precipitate (col. 15-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide forming a precipitate by contacting a solution of soluble metal salts in a concentration of 0.2-0.6 gram-atoms per liter with an alkali at a pH of about 6.3-7.3 and at a temperature of about 20-80°C (col. 15-16) in Golden in order to form an amorphous homogenous precipitate (col. 15-16) as taught by Courty et al. or Ward et al.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Golden (U.S. 5977017) in view of Toshima et al. (U.S. 6632524) and Ward et al. (U.S. 6827917)

Golden teaches a process as described above in claim 1.

Golden fails to teach that the precipitant is an alkaline carbonate or carbonate containing ammonium ions.

However, Ward teaches a method for making a mixed perovskite phase (Throughout document, particularly col. 2) comprising adding ammonium carbonate to carry out precipitation (Throughout document, particularly col. 3, lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide adding ammonium carbonate in Golden

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in order to carry out precipitation (Throughout document, particularly col. 3, lines 1-10) of a precursor of a perovskite as taught by Ward et al.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Golden (U.S. 5977017) in view of Toshima et al. (U.S. 6632524) and Swinkels et al. (U.S. 4263164).

Golden teach a process for making a perovskite as described above in claim 1. Golden fails to teach that the precipitant is a combination of ammonia and carbon dioxide.

Swinkels et al. teach a process for of forming a precipitate comprising a lanthanum metal (col. 1, lines 5-8) wherein carbon dioxide and ammonia in combination are used as a precipitant for the purpose of obtaining a precipitate which is easily separated in a customary manner (col. 2, lines 16-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein carbon dioxide and ammonia in combination are used as a precipitant in Golden in order to obtain a precipitate which is easily separated in a customary manner (col. 2, lines 16-22) as taught by Swinkels et al.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Paul Wartalowicz  
August 24, 2007



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